

## SR 520 Bridge Replacement and HOV Program

I-5 to Medina: Bridge Replacement and HOV Project



**SR 520 Evergreen Point Floating  
Bridge & Landings Project**  
**RFP Questions and Answers # 7**  
**February 18, 2011**  
**Note: Revised answer to Q # 82.**

Q #	Date Received	RFP	Reference	Question	Answer	Addendum (Y/N)
82	1/18/2011	App E6	3	The timing for anchor installation from February to October does not match the in-water work window shown in the earlier table on Pg 2-38 July 16 to March 16 - is this work subject to the in-water work window?	<u>Per Section 2.8.4.6.2.1, Appendix E8 contains the in-water work windows that are a permit commitment and may only be changed through a permit modification as described in Section 2.8. Exhibit 2.1, page 2-38, of Appendix E6 will be revised in Addendum # 9 to match Appendix E8. The dates stated in the narrative are intended to be guidance only, referring to the parameters of weather conditions considered suitable for this construction activity (i.e. they are not timing restrictions). The table on Pg 2-38 shall supersede the narrative.</u>	<del>N</del> Y
128	1/18/2011	2	2.8.4.6.7.1	Certain areas within the project will be targeted for on-site archaeological monitoring requiring the DB to adjust their pace of excavation as requested by WSDOT and slowing or temporarily suspending work as necessary. How many areas might this involve and where are they likely to be located?	See Addendum # 9.	Y
129	1/18/2011	1	1-08.9(5)	LD's of \$100/"element"/hour. How many "elements" are within the project limits?	It will be addressed by future addendum.	Y
130	2/7/2011	App	E6 & E8	Exhibit 2-1 on page 2-38 in Appendix E6 displays the proposed in-water construction timing in Lake Washington. Appendix E8 also displays the proposed in-water construction timing in Lake Washington. The dates for corresponding geographic locations from the two references do not match, <u>which Appendix supersedes the other?</u>	Per Section 2.8.4.6.2.1, Appendix E8 contains the in-water work windows that are a permit commitment and may only be changed through a permit modification as described in Section 2.8. Exhibit 2.1, page 2-38, of Appendix E6 will be revised in Addendum # 9 to match Appendix E8.	Y
131	2/7/2011	2 & App	2.13.3.5, E1, E6, M1 and M2	Ref Appendix E1 the Supplemental Draft Environmental Impact Statement (SDEIS), Appendix E6 the Environmental Project Narrative, Appendix M1, Appendix M2 and Technical Requirements 2.13.3.5. Within the SDEIS, the "Six Lane Alternative", does not include the construction capacity improvement for future High Capacity Transit (HCT)	The bridge columns and foundations shown in conceptual plans in Appendix M1 have been sized to accommodate the future HCT loading. The descriptions of the	N

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				<p>or future expansion accommodations for the HCT. Appendix E6 references an "Impact Area Footprint" and a scope of work "depicted in the Conceptual Plans (Appendix M1)". Technical Requirements 2.13.3.5, page 213 line 21 thru 25, states the DB, "shall design and construct foundations and columns for the South Bridge for the more stringent of the geometric and structural requirements..." shown in Appendix M1 and M2. Appendix M2 depicts capacity for future HCT and future expansion accommodations for the future HCT. Designing and constructing the project to meet the requirements of M2 requires additional structural capacity in the superstructure, substructure and foundation system. To build in this additional capacity requires; more materials in the superstructure, more materials a geometrically larger pier and a larger foundation system. The larger foundation system entails a greater impact to the aquatic environment during construction operations.</p> <p><u>Are the descriptions of the construction activities and the "assessment and accounting of the impacts as presented to the regulatory agencies for permit approvals and environmental clearances" described in Appendix E6 consistent with the SDEIS and M1 or do they include the design and construction of the work as described in Appendix M2?</u></p> <p><u>Secondly, if they are not consistent with M2, please address and clarify the DB's role and responsibility in changes and impacts to the project associated with permit approvals, associated changes to the project to incorporate environmental permit requirement and potential delays to the project.</u></p>	<p>construction activities and the impacts presented in Appendices M1, M2 and E6 and the SDEIS are consistent.</p>	
132	2/7/2011	2	2.12.1.4, 2.12.5.10 .1 & 2.12.5.10 .11	<p>2.12.1.4 PONTOON SYSTEM DESIGN RESPONSIBILITIES</p> <p>WSDOT will provide the final design drawings of the PPDB, including the anchor galleries and Anchor Gallery Hardware, and the Pontoon-to-Pontoon connections in the Pontoon System.</p> <p>2.12.5.10.1 Pontoon Casting Systems and Test Sections</p> <p>If the Design-Builder elects to construct PPDB interior walls with precast concrete, then the following requirements apply:</p> <ul style="list-style-type: none"> <li>• Precast walls shall be the same size, and have the same reinforcing and inserts as the cast-in place concrete walls indicated on the drawings.</li> </ul> <p>2.12.5.10.11 Post-Tensioning</p> <p>The Design-Builder shall furnish and place post-tensioning prestressing steel, plastic ducts, anchorages and distribution plates; tension the prestressing steel; and pressure grout the ducts in the structure in accordance with Pontoon Minimum Technical Requirements (Appendix M22), the WSDOT Standard Specifications (Appendix D18), and this section.</p> <p>Request:</p> <p>Appendix M22 provides drawings showing these PPDB interior walls as reinforced cast-in-place concrete and incomplete post-tensioning design</p>	<p>Design drawings of the PPDB will be updated by future addendum.</p>	Y

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				details. In accordance with Section 2.12.1.4, <u>please provide the final design drawings of the PPDB structures.</u>		
133	2/7/2011	Add # 5	2.6.4.4 & 2.12.5.16.1	<p>2.6.4.4 FLOATING BRIDGE ANCHORS</p> <p>All Floating Bridge Anchors shall be designed using the load and resistance factor design (LRFD) specifications described in the GDM (Appendix D5), the BDM (Appendix D1), and the AASHTO LRFD Bridge Design Specifications.</p> <p>2.12.5.16.1 Anchor Cable Material Requirements</p> <p>The cable diameter shall be 3-1/8 inches.</p> <p>By our calculations, the “factored” anchor load is 572 kips, based on WSDOT-provided anchor loads (Appendix S15) and the load combination factors specified by 2.6.4.4.</p> <p>Clause 2.12.5.16.1 specifies a 3-1/8” diameter anchor cable. The nominal breaking strength specified by the manufacturer is 1132 kips (566 tons). The nominal breaking strength of the specified anchor cable is 1.98 times the calculated “factored” anchor load.</p> <p><u>Please confirm that a 3-1/8” diameter anchor cable is required.</u></p>	<p>The anchor cable size is based on loading from three sources:</p> <ul style="list-style-type: none"> <li>• Loads as shown in the table in Appendix S15.</li> <li>• A factor of safety considering potential loads that may result from loss of one or more anchor cables or other damage conditions.</li> <li>• Loads from a seiche wave extreme event with accompanying damage.</li> </ul> <p>This anchor cable size is necessary to protect the long-term performance and safety of the floating bridge.</p>	N
134	2/7/2011	Add # 5	Appendix G12	<p>G12, Preliminary Conceptual Engineering Report, Floating Bridge Anchors p.15, Fluke Anchors</p> <p>We estimated the required fluke anchors' size based on the loads provided by the WSDOT Bridge and Structures Office for the 100-year storm, south condition (reproduced in Exhibit 10).</p> <p>AND Proposed anchor KS (the largest required resistance) has a <b>factored</b> anchor load of 365 kips.</p> <p>The loads presented in Exhibit 10 (20 January 2011) differ from the recent values provided by WSDOT in Appendix S15 – Wind and Wave Load Analysis (02 December 2010). <u>Please clarify the basis for a “factored anchor load of 365 kips” at proposed anchor KS.</u></p>	It will be addressed by future addendum.	Y
135	2/7/2011	2	Chapter 2 / App. S15	<p>2.6.4.4 FLOATING BRIDGE ANCHORS</p> <p>All Floating Bridge Anchors shall be designed using the load and resistance factor design (LRFD) specifications described in the GDM (Appendix D5), the BDM (Appendix D1), and the AASHTO LRFD Bridge Design Specifications.</p> <p>S15 Wind and Wave Load Analysis</p> <p>This document provides the results of the wind and wave force analysis, including anchor loads under a variety of design conditions.</p> <p>Appendix S15 (dated 02 December 2010), presents the results of the wind and wave analyses for the subject bridge. The data includes a summary of the anchor loads under a pre-defined set of design conditions.</p> <p>In accordance with 2.6.4.4, the design “factored” anchor loads are derived by applying the specified load combination factors to the anchor loads (arithmetic sum of steady state + dynamic components). By our calculations, the maximum <b>“factored”</b> load for the Strength IIIA Load</p>	It will be addressed by future addendum.	Y

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				Combination (100-yr return, South storm, analyzed at the Project Lake Level with Anchor Pre-Tension set at Low Water Level) is: $1.2 \times (\text{Static} = 403 \text{ kips}) + 1.4 \times (\text{Dynamic} = 63 \text{ kips}) = 572 \text{ kips}$ . <u>Please confirm that the anchor loads presented in Appendix S15 are UNFACTORED, and are the basis for deriving the design Factored loads as per the provisions of 2.6.4.4.</u>		
136	2/7/2011	Add # 5	2.6.4.4	2.6.4.4 FLOATING BRIDGE ANCHORS All Floating Bridge Anchors shall be designed using the load and resistance factor design (LRFD) specifications described in the GDM (Appendix D5), the BDM (Appendix D1), and the AASHTO LRFD Bridge Design Specifications. Addendum 5 modified Clause 2.12.4.2.8.2 Anchor System Design, such that the "ultimate (soil/anchor interaction) capacity of the anchor shall be equal to or greater than 1.25 times the minimum (nominal) breaking strength of the anchor cable to which it is attached". 2.6.4.4 states that "All Floating Bridge Anchors shall be designed using the load and resistance factor design (LRFD) specifications described in the GDM (Appendix D5), the BDM (Appendix D1), and the AASHTO LRFD Bridge Design Specifications". <u>Please confirm that:</u> • <u>Clause 2.12.4.8.2 addresses the structural design requirements for the anchors; and</u> • <u>Clause 2.6.4.4 addresses the geotechnical design requirements for the anchors, in accordance with the loads provided by WSDOT in Appendix S15 Wind and Wave Force Analysis.</u>	It will be addressed by future addendum.	Y
137	2/7/2011	2	2.12.4.2.3.10	Inertial Loads on Structure are provided in Appendix S15 (Wind/Wave Analysis). The Results section (Section 5) of the report lists values for "sway and heave acceleration". However, no values for "roll acceleration" are provided. <u>Please provide the corresponding roll accelerations for the analysis results presented in Appendix S15.</u>	The sway accelerations at the superstructure CG provided in Appendix S15, page 5-1 item 12, contain the roll acceleration component. The global sway acceleration and the transverse component of the roll acceleration at the superstructure CG are combined.	N
138	2/7/2011	2	2.12.4.2.7.3	The RFP specifies a construction tolerance of four percent in calculating the pontoon freeboard. It's not clear if this four percent (or any tolerance) is included in the ballast calculations presented in the Ballasting Analysis in Appendix S6. <u>What percentage and in what elements (pontoons, superstructure, etc) was a construction tolerance assumed in the Appendix S6 Ballasting Analysis?</u>	The assumed percentage for the Pontoons in Appendix S6 was based on actual construction tolerances listed in Section 2.12 for Pontoon walls, slabs, etc. The specified 4% construction tolerance shall be assumed for all items, unless the percentage weight increase can be calculated based on construction tolerances listed in Section 2.12, in	N

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					accordance with Section 2.12.4.2.7.3.	
139	2/7/2011	2	2.12.5.16.9	The SPP which will be constructed at Aberdeen will be constructed per WSDOT requirements. Specifically, the first cycle will include: two each type 3 pontoons, two each type 1 pontoons, and two each type 4 pontoons. These pontoons will be fit, joined and anchored into their respective positions in the new bridge alignment. Specification section 2.12.5.16.9, beginning on line 43 directs contractor to tension transverse (type 1 and 3 pontoon anchors) anchor cables by jacking opposing anchor cables simultaneously, and for the longitudinal cables (type 4 anchors) to be jacked in 2 pairs simultaneously. The SPP provided from Aberdeen will only deliver 2 type 4 pontoons per cycle, over 4 cycles. With this type 4 delivery schedule, contractor will be required to either postpone anchoring a cycle until the following cycle from Aberdeen is received, or, contractor will be required to install temporary anchorages to oppose the longitudinal anchors provided. Currently there are no provisions in the contract to provide temporary anchors or attachments from those temporary anchors to the pontoons. Other complications with temporary anchorages, may require those anchorages to be installed such that they lie within the navigation channel. <u>How can contractor get relief from the requirement to temporarily anchor these pontoons that will comply with the specifications?</u>	The use of temporary anchors for assembly is anticipated and is specified in Section 2.12.5.15.	N
140	2/14/2011	App	M1, V1, LG01	Appendix M1, Volume 1, Drawing LG01 refers to Drawing LG02 at matchline. Drawing LG02 does not appear on the drawing index and appears to be omitted from the RFP. <u>Please issue drawing LG02 or revise the index to correctly reflect the drawings intended to be included in the RFP.</u>	Drawing LG02 will not be issued. Drawing LG01 has been updated to show work on top of the Evergreen Point Road Lid by other. Drawing LG01 and Index sheet are updated in Addendum # 9.	Y
141	2/14/2011	App	M1, V1, Index	Appendix M1, Volume 2, Index of Appendix M1 notes drawings MD1 thru MD2. The drawings included in the RFP are identified as MD1, MD2, and MD3, respectively. Please revise the index to correctly reflect the drawings intended to be included in the RFP.	See Addendum # 9.	Y